

Serial No. 09/514,250

Docket No. YHK-0039

REMARKS

Claims 19-25 and 61-82 are pending in this application. By this Amendment, claims 1-18, 26-40 and 44-60 are cancelled, claim 20 is amended and claims 61-82 are added. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

Applicant gratefully acknowledges the courtesies extended by Examiner Chang on April 11, 2003 in a personal interview. In the personal interview, the four lens system was discussed as to the novelty and non-obviousness of features of the claimed invention. Specifically, the combination of each of the four lenses of the system in combination with the diffractive optical element and the individual characteristics of each of the lenses in combination with the other lenses and the diffractive optical element were discussed. Additionally, the restriction requirement was also discussed. Applicant hereby incorporates all of the discussion in the personal interview, as well as the comments set forth below.

I. 35 U.S.C. §112, second paragraph

The Office Action rejects claims 47, 51 and 53 under 35 U.S.C. §112, second paragraph. Applicant respectfully submits that claims 47, 51 and 53 were cancelled

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without prejudice or disclaimer, therefore the rejection is moot. Withdrawal of the rejection is respectfully requested.

II. 35 U.S.C. §103(a)

The Office Action rejects claims 1, 2, 4-6, 8, 9, 11-13, 19-25, 38-40, and 45-60 under 35 U.S.C. §103(a) over Ogata, Chipper, Meyers et al, and Moskovich, alone and in various combinations. Claims 1, 2, 4-6, 8, 9, 11-13, 38-40, and 45-60 have been cancelled without prejudice or disclaimer, therefore the rejection of these claims is moot. Because the Moskovich and Ogata, alone or in combination, fail to disclose or suggest all the features of remaining claims 19-25, the rejection is respectfully traversed.

As discussed in the personal interview, the claimed four lens system is novel and non-obvious because the combination of the specific lenses and the diffractive optical element, as claimed, provide novelty. The combination of the lenses was specifically chosen with the diffractive optical element in the claimed invention to provide a thin projection system based on the use of the four lenses with the diffractive optical element claimed to provide chromatic aberration correction as well as positive refractive power.

In the Office Action, remaining rejected claims 19-25 were rejected over Moskovich in view of Ogata. In Moskovich, a four lens system is disclosed, but the system includes, as illustrated in Moskovich Figure 3, a positive refractive power first lens L1, a weak

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positive to weak negative second lens L2, a corrector lens unit L3 and a negative lens L4, where the system does not disclose or suggest the use of any diffractive optical elements.

As such, Moskovich fails to disclose or suggest, as claimed in claim 19, at least the feature of a first lens having a positive refractive power at the center thereof and a negative refractive power at the peripheral thereof, a second lens having a relatively large positive refractive power, a third lens having a positive refractive power, a fourth lens having a negative refractive power, and a diffractive optical element formed on at least one surface of said lenses.

As discussed in the interview, the claimed combination of the lenses with the diffractive optical element requires the diffractive optical element in order to create the system desired. The diffractive optical element, in the claimed invention, is specifically included in order to allow the system to concentrate a majority of the system's positive refractive power into the second lens only, while this concentration of positive refractive power creates aberrations that are corrected by the diffractive optical element.

Ogata fails to cure the deficiencies of Moskovich in that it is a different system which discloses a zoom lens for a lens shutter camera in which a diffraction grating is provided. See Ogata, column 2, lines 34-46. Specifically, the use of the diffraction grating is not in combination with the series of lenses claimed.

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The Office Action states that "[i]t would then be obvious to one skilled in the art to apply the teachings of Ogata to form a diffractive optical element on an aspherical lens of the lens system of Moskovich for the benefit of correcting the aberrations in the projection lens system." See Office Action, page 6, lines 14-16.

Applicant respectfully submits that while the use of a diffractive optical element may be known to be used for correcting aberrations, the combination of the four lens system specifically claimed, by each of claims 19-25, as well as newly added claims 61-82, including the diffractive optical element was specifically designed to work in combination and is not a mere combination of parts.

Applicant further respectfully submits that the idea of the use of a diffractive optical element in the claimed invention is not the invention as a whole. While the Moskovich discloses a four lens system similar to the claimed invention, and while Ogata discloses using a diffraction grating for aspheric action and chromatic aberration correction, the Moskovich reference uses a corrector lens unit L3, and therefore does not teach or suggest a combination with a diffractive optical element. Additionally, as mentioned above, the claimed invention is specifically designed with each lens serving a specific purpose in the system in combination with the diffractive optical element in order to provide a thinner projection system than in the prior art.

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Applicants respectfully submit that claim 19 is allowable. Claims 20-25 depend from claim 19 and are allowable for at least the same reasons set forth above, as well as their added features and the combinations thereof. Withdrawal of the rejection is respectfully required.

III. New Claims 61-82

By this Amendment, claims 61-82 are added to the Application. Claims 61-82 broadly recite features of the preferred embodiment(s). Specifically, claims 61-66 depend from claim 19 and claims 67-82 recite features directed to a four lens system. It is respectfully submitted that the new claims are allowable over the references of record for the reasons discussed above in connection with claims 19-25.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Applicant respectfully requests that if the Examiner believes that any additional changes would place the application in better condition for allowance or may expedite prosecution of this matter, the Examiner please contact the undersigned attorney, Laura L. Lee, at the telephone number listed below.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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